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REMARKS

Applicant requests reconsideration of the present application in view of the foregoing amendments and the discussion that follows. The status of the claims is as follows. Claims 1-70 are pending. The Examiner has withdrawn claims 26-70 from consideration. Such claims have been canceled herein without prejudice to Applicant's filing of divisional applications to what the Examiner has determined is the separately patentable subject matter thereof. Claims 1, 2 and 6 have been amended herein.

Amendment of Inventorship

A request is made herein pursuant to 37 C.F.R. 1.48(b) to amend the Inventorship in the present application by deleting Richard O. Hilson and Edward P. Donlon. The Examiner issued a restriction requirement in the present application and Applicant elected Claims 1-25 for prosecution. In the Final Rejection in the Office Action dated July 2, 2003, the Examiner required cancellation of the non-elected claims. Cancellation of Claims 26-70 above created a situation wherein the invention of Richard O. Hilson and Edward P. Donlon is no longer being claimed in the present application.

The Amendment

Claim 1 was amended to recite that the housing comprises at least one wall extending from an area adjacent a top edge of the well wherein (a) the at least one wall is at least partially sloped in an area thereof adjacent the edge or (b) a ledge extends from the edge to the at least one wall. Support therefor is in the Specification, for example, original Claims 1-3 and 6 and the figures.

Claims 2 and 6 were amended to satisfy their respective dependencies from Claim 1, which was amended as discussed above.

Rejection under 35 U.S.C. §102

Applicant acknowledges the withdrawal of all rejections under the above code section.

Discussion of Certain Aspects of the Invention

Applicant first would like to discuss certain aspects of the present invention prior to addressing the rejections in the Office Action in order to avoid any misunderstanding concerning aspects of the present devices. Reference will be made to Figs. 1-4 to assist in this discussion. Referring to Fig. 1, device 20 is depicted and comprises support 22 affixed to the bottom of housing 23 of device 20. Support 22 forms a bottom wall of well 24, which comprises walls 26. Thus, as can be seen, the well referred to in the claims is represented, for example, by well 24, which comprises a bottom wall and side walls 26. Housing 23 further comprises a single circular wall 28 that is sloped from edge 30, which is a top edge of well 24, to top portion 32 of housing 23 of device 20. Referring to Figs. 3 and 4, device 50 is depicted and comprises support 52 affixed to the bottom of the device. Support 52 forms a bottom wall of well 54, which comprises walls 56. Device 50 further comprises ledge 57 extending from the top edge of walls 56 as well as a single circular wall 58 that is sloped from edge 60 of ledge 57 to top portion 62 of housing 53 of device 50.

As explained in Applicant's specification (page 21, line 22, to page 22, line 2, and page 23, line 24, to page 24, line 16), the devices of the invention have particular application in the area of binding reactions involving biopolymers such as hybridization reactions involving polynucleotides. For purposes of this discussion, one embodiment is described next by way of illustration and not limitation. During the initial portion of a hybridization experiment, a sample solution containing labeled molecules is introduced into well 24. The sample solution spreads across the surface of the support, which comprises polynucleotides as a molecular array, by means of capillary action and may be assisted in spreading. Referring to Fig. 2, liquid 34 is shown in well 24 of device 20 and has meniscus 36. As can be seen, the sample liquid fills only well 24. Once the sample solution has been distributed across the surface of the molecular array, the sample solution is held in place by gravity and surface tension, which manifests itself in the form of a meniscus in the well of the device as discussed above. Hybridization between molecules in the sample solution and molecules affixed to the inner surface of the support comprising a molecular array on the surface of the support is then allowed to proceed. Following hybridization, buffer solution is introduced into the device to rinse the sample solution from the surface of the support comprising the molecular array. The

volume of the buffer solution is usually greater than the volume of the sample solution, usually being at least about 10 times greater, more usually, at least about 100 times greater. In this regard the buffer solution combines with the sample solution and occupies the larger chamber that is above the well of the present device, that is, the chamber formed by circular sloping wall 28 of device 20.

During the incubation period for the hybridization reactions, it is important to have the substrate surface covered with liquid. Furthermore, in general, it is desirable to use as little volume of liquid as possible to conserve sample and reagents. The small well at the bottom of the device permits this conservation. As explained in the specification, because of the small volume of liquid forming a thin layer above the surface of the substrate, it is important to prevent wicking of liquid from the well. The structural features of the devices of the present invention accomplishes this.

Rejection under 35 U.S.C. §103

Claims 1-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Earley, *et al.* (WO 94/08759 A1) (Earley). In order to maintain a rejection under 35 U.S.C. §103 the Examiner must first establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); *In re Piasecki*, 745 F.2d 1468, 223 U.S.P.Q. 785 (Fed. Cir. 1984). In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed substitution, combination or other modification. *In re Lintner*, 458 F.2d 1013, 173 U.S.P.Q. 560 (C.C.P.A. 1972). In determining the scope and content of the prior art, references must be considered in their entirety, as a whole, including portions that would lead away from the claimed invention. *In re Panduit*, 810 F.2d 1561, 1 U.S.P.Q.2d 1593 (Fed Cir. 1987). Hindsight reconstruction using the disclosure and claims in prosecution as a guide to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention is not permitted. *In re Fine, supra*.

With regard to Claim 1, Earley does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge

extends from the edge to the at least one wall. As indicated on page 7, lines 10-11, and Figs. 7-8, Earley's disclosure relates only to standard ninety six well microtiter plates having a capacity of about 300 microliters. As can be seen from Fig. 8, the wells of Earley's microtiter plate do not have, nor is there any suggestion of, at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As a matter of fact, Earley's teaching is completely devoid of any disclosure of additional walls leading from his well.

Claims 1-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pedley (GB 2 197 720 A). With regard to Claim 1, Pedley does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. The disclosure of Pedley refers only to wells of microtiter plates. As indicated, for example, on page 6, lines 19-21, Pedley prefers microtiter plates having 96 wells because these are stock equipment in most laboratories. As a matter of fact, Pedley's teaching is completely devoid of any disclosure of additional walls leading from his well.

Claims 1-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Balch (U.S. Patent No. 6,083,763). With regard to Claim 1, Balch does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. The disclosure of Balch refers only to wells of microtiter plates. As indicated, for example, in Fig. 4, Balch primarily focuses on standard 96/384 well microtiter plates. Balch does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As a matter of fact, Balch's teaching is completely devoid of any disclosure of additional walls leading from his well.

Claims 1-19 and 22-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel (U.S. Patent No. 4,919,894). With regard to Claim 1, Daniel does not disclose or suggest at least one wall extending from an area

adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. The disclosure of Daniel refers only to wells of microtiter plates. As indicated, for example, in column 1, lines 16-19, Daniel refers to typical plates that contain 8X12 horizontal and vertical rows totaling 96 individual microwells.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Matkovich, *et al.* (U.S. Patent No. 4,828,386) (Matkovich). With regard to Claim 1, Matkovich does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated, for example, in the Abstract, Matkovich's disclosure relates to multiwell plates. At column 3, lines 7-10, Matkovich indicates that the basic multiwell plate of the invention resembles known multiwell plates. Such known plates include multiwell plates containing 96 wells arranged in an 8 X 12 pattern.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Calenoff, *et al.* (U.S. Patent No. 4,844,966). With regard to Claim 1, Calenoff does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated, for example, in the Abstract, Calenoff's disclosure relates to multiwell plates. At column 5, lines 4-6, Calenoff indicates that a particularly advantageous support for his procedure comprises a microtiter plate having a plurality of wells. As a matter of fact, Calenoff's teaching is completely devoid of any disclosure of additional walls leading from his well.

Claims 1-19, 22-23 and 25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Provonchee (U.S. Patent No. 4,701,754). With regard to Claim 1, Provonchee does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated, for example, at column 1, lines 20-22, and column 2, line 12, Provonchee's disclosure relates to conventional microtiter plates

or trays. Provonchee's teaching is completely devoid of any disclosure of additional walls leading from his well.

Claims 1-19 and 22-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Cassin, *et al.* (U.S. Patent No. 5,910,287)(Cassin). With regard to Claim 1, Cassin does not disclose or suggest at least one wall extending from an area adjacent a top edge of the well wherein the at least one wall is at least partially sloped in an area thereof adjacent the well or wherein a ledge extends from the edge to the at least one wall. As indicated, for example, in the Abstract, Cassin's disclosure relates to multiwell plates with greater than 864 wells that comprise a layer of cycloolefin. As a matter of fact, Cassin's teaching is completely devoid of any disclosure of additional walls leading from his well.

Summary

Most of the above references disclose or suggest nothing more than conventional multi-well microtiter plates. Some references disclose various nuances of the conventional microtiter plates but do not disclose or suggest the structural features of the devices of the present invention as discussed above with regard to each reference.

Applicant submits that, in order for one to modify the deficient teachings of the reference to achieve the devices of the present invention, one would have to use Applicant's disclosure because the references do not teach anything relevant to the wicking problem addressed by Applicant and the structural features that avoid this problem. As has been held, there must be some suggestion, motivation or teaching in the prior art whereby the person of ordinary skill would have selected the components that the inventor selected and used to make the new device (*C.R. Bard, Inc. v M3 Systems, Inc.*, 157 F.3d 1340, 48 U.S.P.Q.2d 1225 (Fed. Cir. 1998), *cert. denied*, 67 U.S.L.W. 3715 (1999)).

The Examiner alleges that Matkovich provides the motivation for modifying the teachings of each of the references in the fanciful manner in which the Examiner has done. Applicant submits that this motivation is not sufficient to suggest the present invention to one of ordinary skill in the art. To assert that this teaching provides the motivation for modifying the teachings of each of the references in the manner in which the Examiner has done to create the presently claimed invention goes far beyond the actual teaching of the Matkovich reference.

In addition, the Examiner appears to be using Applicant's disclosure in support of the rejection. "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This court has previously stated that '[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.'" *In re Fritch*, 972 F.2d 1260, 23 USPQ 2d 1780, 1784 (Fed. Cir. 1992) (quoting *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988).

It is Applicant's teaching and invention to avoid wicking by various structural features of the claimed devices. Accordingly, the holding in *In re Rose*, *supra*, is not applicable since the present invention goes far beyond mere differences in size of an article of manufacture. The references do not teach or suggest the structural features set forth in the claims.

Conclusion

Claims 1-25 satisfy the requirements of 35 U.S.C. §103. Allowance of the above-identified patent application, it is submitted, is in order. In any event entry of the above amendments narrows the number of issues and places the above application in better form for consideration on appeal. The amendments essentially incorporate in the alternative structural elements from dependent Claims 3 and 6 into Claim 1. Amended Claim 1 recites features that were present in dependent claims originally presented.

Respectfully submitted,


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